



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/695,831

10/30/2003

Yasushi Tohi

018765-145

7189

21839

7590

06/27/2006

BUCHANAN INGERSOLL PC
(INCLUDING BURNS, DOANE, SWECKER & MATHIS)
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

LU, C CAIXIA

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,831

Applicant(s)

TOHI ET AL.

Examiner

Caixia Lu

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-14 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 13 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/14/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claims 1-3, 5, 6, 13, and 14 are under 35 U.S.C. 103(a) as obvious over Alt et al. (US 5,436,305) and Alt et al. (US 5,571,880).

The instant claims are directed to a process for preparing a low molecular weight ethylene polymer with intrinsic viscosity of 0.6 dl/g or less in decaline in the presence of an at least two-atom bridged fluorenyl containing metallocene complex in a temperature range of 100 to 250 °C.

Alt teaches an ethylene polymerization process in the presence of 1,2-difluorenyethane zirconium dichloride catalyst and methylaluminumoxane cocatalyst in Example XI of col. 18, wherein the ethylene copolymer Run 9 is a waxy material with intrinsic viscosity (IV) of 0.41, see Table 1. Alt's metallocene catalyst compositions read on the instant claims.

Although Alt's do not disclose the claimed limitation intrinsic viscosity of 0.6 dl/g or less in decaline of the olefin polymers, Alt does expressly disclose that those polymers are low molecular weight and xylene soluble or in waxy state. The lower the molecular weight, the lower the intrinsic viscosity. Therefore, one of the ordinary skill in the art would have expected those low molecular weight olefin polymers to have a correspondingly low intrinsic viscosity in decaline, such as 0.6 dl/g or less in decaline. Even if the claimed intrinsic viscosity of 0.6 dl/g or less in decaline are not inherent in the polymers of the prior art examples, it would still have been obvious to a skilled artisan to lower the intrinsic viscosity of the olefin polymer by introduce more hydrogen

Art Unit: 1713

to the polymerization media during the polymerization process. Once a product appearing to be substantially identical is found and a 35 USC 102/103 rejection made, the burden of proof is shifted to the applicant to show an unobvious difference. In re Fitzgerald, 205 USPQ 594. In re Fessmann, 180 USPQ 324. Applicants have not met their burden to demonstrate an unobvious difference between the claimed product and the products of the prior art examples.

Alt further teaches the polymerization can be carried out under a wide range of condition such as those disclosed in US 4,892,851 and US 4,530,914. US 4,530,914 discloses the preferred polymerization temperature in the range of about 50 to 160 °C in lines 1-9 of col. 6. US 4,892,851 discloses in lines 52-65 of col. 3 that the characteristics of the polymer produced can be controlled by varying the polymerization temperature, a higher reaction temperature generally produces a less crystalline polymer with a lower melting point.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Alt's teaching to conducting ethylene polymerization at temperature ranging from 50 to 160 °C, especially at the higher end of the range to obtain a less crystalline ethylene polymer since such is disclosed in the cited reference and in the absence of any showing of criticality and unexpected results.

Similar rejections are made over the teaching of Alt et al. (US 5,571,880), see Example VI, Run 9 in Table I, and Example VII, Run 11 in Table II.

Response to Arguments

2. Applicant's arguments with respect to the rejected claims have been considered.

Applicants argue that the presently claimed process provides a low molecular weight ethylene polymer having a narrow molecular weight distribution and low melting point with higher productivity, and the high polymerization temperature miniaturized the heat removal device and lower the cost. However, polymer structure, molecular weight distribution and productivity are depended on the type of catalyst and polymerization conditions, those characteristics should be inherently in Alt's process because Alt teaches or suggests those process. Further, the high polymerization temperature miniaturized the heat removal device and lower the cost those are expected results rather than unexpected results.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

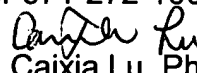
Art Unit: 1713

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached on 9:00 a.m. to 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Caixia Lu, Ph. D.
Primary Examiner